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# UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL MARKETING SERVICE

SERVICE AND REGULATORY ANNOUNCEMENTS NO. 138<sup>1</sup>

## UNITED STATES STANDARDS FOR GRADES OF CANNED CORN—WHOLE-GRAIN STYLE

(Approved November 22, 1932)

DEPARTMENT OF AGRICULTURE,  
Washington, D. C.

By virtue of the authority vested in the Secretary of Agriculture by the provision in the act of Congress entitled "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1933, and for other purposes" (Public, No. 269, 72d Cong.), approved July 7, 1932, authorizing an inspection service for farm products, I, R. W. Dunlap, Acting Secretary of Agriculture, do prescribe and promulgate the following standards for grades of canned whole-grain style corn, to be in force and effect on and after December 1, 1932, and as long as Congress shall provide the necessary authority therefor, unless amended or superseded by standards hereafter prescribed and promulgated under such authority. These standards shall supersede all standards for canned whole-grain style corn previously promulgated.

In testimony whereof I have hereunto set my hand and caused the official seal of the Department of Agriculture to be affixed in the city of Washington this 22d day of November, 1932.



*R. W. Dunlap*

Acting Secretary.

### DEFINITION

Canned corn is the canned vegetable prepared from the immature grain of sweet corn (*Zea mays* L.) with or without the addition of salt and/or sugar, with the addition of such quantities of potable water as may be necessary in the proper preparation of the product, packed in hermetically sealed containers, and sterilized by heat.

### STYLES OF CANNED CORN

**Whole-Grain Style** canned corn is canned sweet corn prepared from corn removed from the cob by cutting in such a manner as to leave the grain substantially whole. The grains are surrounded by brine, except when "vacuum packed."

**Cream-Style** canned corn is canned sweet corn prepared from corn removed from the cob by shallow cutting through the grain and subsequent scraping, causing it to have a creamy consistency.

### GRADES OF WHOLE-GRAIN STYLE CANNED CORN

**U. S. Grade A** (fancy) canned corn is the product prepared from young, tender, sweet corn which possesses similar varietal characteristics. The grains are substantially whole, uniformly bright, and true to the natural color of young, very tender, sweet corn. The product is practically free from defects such as silks, husks, particles of cob, off-colored and/or damaged grains; possesses the distinct flavor of succulent young corn; and scores not less than 90 points when scored according to the scoring system outlined herein.

**U. S. Grade B** (extra standard or choice) canned corn is the product prepared from substantially whole grains of reasonably tender sweet corn, severed

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from the cob with reasonable uniformity. The grains are of a reasonably bright color. The product is reasonably free from defects such as silks, husks, particles of cob, off-colored and/or damaged grains; possesses a good flavor; and scores not less than 75 points and need not score more than 89 points when scored according to the scoring system outlined herein.

**U. S. Grade C** (standard) canned corn is the product prepared from substantially whole grains of sweet corn that may be entering or in, but has not passed, the dough stage, and the cut of which grains may lack uniformity. The grains may be slightly dull in color. The product is fairly free from defects such as silks, husks, particles of cob, off-colored and/or damaged grains; possesses a palatable corn flavor; and scores not less than 60 points and need not score more than 74 points when scored according to the scoring system outlined herein.

**Off-Grade** (substandard) canned corn is canned sweet corn which scores less than 60 points when scored according to the scoring system outlined herein, or when any one of the grading factors, with the exception of cut, falls in the subdivision D.

## PREREQUISITES TO GRADING

### CONDITION OF CONTAINER

Containers shall be sound and clean. If the containers are metal, they shall be free from rust and serious dents, and the ends shall be flat or concave.

### CONDITION OF PACKAGE AND LABEL

If cased, the canned corn shall be packed in clean, neat, unbroken packages. If labeled, the labels on the container and package shall be clean and shall be neatly and securely affixed, and shall comply in all respects with the requirements of the Federal food and drugs act.

### FILL OF CONTAINER

Cans of corn will be considered as of standard fill if the head space, measured from the top of the product to the underside of the lid, does not exceed 10 per cent of the total inside height of the container; and if the packing medium is not in excess of the quantity necessary for proper processing without impairment of quality. No head space is deemed excessive, however, unless it exceeds one-fourth inch. In vacuum-packed products the head space is determined after pouring out the contents, breaking up lumps if necessary, returning them to the original container, and leveling without agitation or without downward pressure.

A certificate of grade covering canned corn that does not meet the above requirements shall bear the legend,

“Below U. S. Standard”

“Slack Fill”

A certificate of grade covering canned corn that does not meet the above requirement in that the packing medium is excessive, whether or not the head space is excessive, shall bear at least the 2-line legend,

“Below U. S. Standard—Slack Fill”

“Contains Excess Added Liquid”

The maximum head space and the minimum drained net weight allowable in the sizes commonly used in packing whole-grain corn is shown in the accompanying table:

Can size	Can dimensions (in inches)		Maximum capacity in water at 63° F. (In ounces)	Minimum drained weight re- quired (In ounces)	Maximum head space allowable (measured from top of double seam in six- teenths of an inch)
	Diameter	Height			
No. 1 (picnic).....	2 $\frac{1}{4}$ s	4	10.94	7.25	8.8
No. 2.....	3 $\frac{1}{16}$ s	4 $\frac{9}{16}$ s	20.55	13.50	9.7
No. 10.....	6 $\frac{1}{16}$ s	7	109.43	72.00	13.6

## ASCERTAINING THE GRADE

The grades of whole-grain style canned corn may be ascertained by considering the following factors: Color, absence of defects, cut, maturity, and flavor. The relative importance of each element has been expressed numerically on a scale of 100. The maximum number of credits which may be given for each factor is:

	Points
I. Color.....	10
II. Absence of defects.....	20
III. Cut.....	10
IV. Maturity.....	35
V. Flavor.....	25
Total.....	100

## ASCERTAINING THE RATING OF EACH FACTOR

The essential variations within each factor are so described that the value may be ascertained for each factor and expressed numerically. The numerical ranges within each factor are inclusive. For instance, the range 12 to 14 means 12, 13, and 14.

### I. Color.

- (A) To receive a rating within the highest group, 9 to 10 points, for this factor, the product must be uniformly of a good bright color, natural to the variety.
- (B) If a slight deviation from the natural color is found, a credit of 7 to 8 points may be allowed.
- (C) If the product is dull in color, or in white varieties has a brownish cast, a credit of 5 to 6 points may be given. Corn that falls in this classification shall not be graded above U. S. Grade C, or Standard, regardless of the total score for the product.
- (D) Corn having an "off" color or distinctly bad color, regardless of the reason for the inferiority, may not be scored more than 4 points for this factor.

### II. Absence of Defects.—The factor relating to defects deals principally with workmanship, having reference to the degree of freedom from objectionable substances such as silks, husks, particles of cob, off-colored and/or damaged grains, clusters of grains, hard or worm-eaten grains, can black, and rust.

- (A) The highest rating, 19 to 20 points, for this factor, may be given only when the corn is practically free from such defects.
- (B) If but an occasional defect is detected, 16 to 18 points may be allowed.
- (C) If the defects are not of sufficient importance to detract from the appearance of the product or materially lessen its edible value, 13 to 15 points may be allowed.
- (D) When the defects are prominent, a credit of 0 to 12 points may be allowed for this factor.

### III. Cut.—The factor of cut relates to the character of cut; that is, the effect of the cut on the appearance of the product.

- (A) If the corn has been evenly severed from the cob (close to the cob but including none of the cob tissues), a credit of 9 to 10 points may be allowed.
- (B) If the cut is lacking somewhat in the above uniformity, 7 to 8 points may be allowed.
- (C) If the cut is irregular and lacking in uniformity, 5 to 6 points are allowable.
- (D) If the cut is very irregular, a score of only 0 to 4 points may be allowed.

### IV. Maturity.—Credits for the factor of maturity shall be based on the degree of tenderness or the starchiness of the corn.

- (A) To receive a rating within the highest group, 31 to 35 points, for this factor, the grains must be well developed but very tender, in what may be termed the milk stage.
- (B) Tender corn in the cream stage may be scored within the range of 26 to 30 points.
- (C) If the grains of corn are firm, or are entering the dough stage, a credit of 21 to 25 points may be allowed. Corn that falls in this classification shall not be graded above U. S. Grade C, or Standard, regardless of the total score for the product.



- (D) Corn that is tough or "leathery" and past the dough stage, or that is so young that the grains are undeveloped, may be given from 0 to 20 points, for this factor.
- V. Flavor.**—The quality of flavor of canned corn shall be classified from the standpoint of palatability. The natural flavor of the corn is to be considered, regardless of the addition of, or absence of, sugar and/or salt.
- (A) Corn that has a typical, distinctly young, tender corn flavor is entitled to the highest rating, 22 to 25 points, for this factor.
  - (B) Corn that has a good flavor, but with the young corn flavor not so distinct, may be given a rating within the range of 19 to 21 points.
  - (C) If the flavor is considered fair, but palatable, or possesses, for instance, a somewhat matured taste, only 16 to 18 points may be allowed.
  - (D) If the flavor is poor, or decidedly objectionable, or if the product has been excessively salted or sweetened, 0 to 15 points may be allowed.









